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New Molluscan Hosts for Two Shrimps and Two Crabs on the Coast of Baja California, with Some Remarks on Distribution

by

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Abstract. *Astraea undosa* and *Hinnites giganteus* are recorded as new hosts for *Betaeus harfordi* and *Pinnotheres margarita* respectively. For the latter, a range extension is given to Bahía del Rosario, on the west coast of Baja California. *Atrina tuberculosa* is confirmed as a regular host for *Pontonia pinnae,* and *Protothaca grata* and *Tagelus affinis* as hosts for *Pinnotheres reticulatus.* The distributional data for *Pinnotheres reticulatus* in the Gulf of California are emended, and for *Pontonia pinnae* a range extension is given to Laguna de San Ignacio, on the west coast of Baja California Sur.

INTRODUCTION

Some species of decapod crustaceans commonly occur as symbionts of other invertebrates (PATTON, 1967). On the coasts of Baja California, some caridean shrimps and pinnotherid crabs are frequently collected inside, or on, their hosts (HART, 1964; SCHMITT *et al.,* 1973; WICKSTEN, 1983; CAMPOS-GONZÁLEZ, 1986). Recently, the author and some colleagues collected shrimps of the genera *Betaeus* and *Pontonia,* and two species of crabs, genus *Pinnotheres,* in hosts previously not recorded, or overlooked in the recent literature and now confirmed.

DESCRIPTIONS

ALPHEIDAE

Betaeus harfordi Kingsley, 1878

Distribution and hosts: Fort Bragg, Mendocino Co., California, U.S.A., to Bahía Magdalena, Baja California Sur, México; commensal in *Haliotis* spp. (CHACE & ABBOTT, 1980).

Material examined and new host: 1 male, 1 female, and 3 juveniles, Isla Cedros, Baja California, in the mantle cavity of *Astraea undosa* (Wood, 1828), 6 January 1987, Gabriel Jiménez-Beede, coll.

Remarks: The occurrence of *Betaeus harfordi* as a commensal of *Astraea undosa* is apparently rare, since the only hosts previously recorded are species of *Haliotis.* ACHE & DAVENPORT (1972) noted . . . . "Specifity experiments suggest that *B. harfordi* discriminates a chemical substance or complex of substances containing sufficient information for recognizing gastropods of the genus *Haliotis* from other gastropods . . . ." It is possible that *A. undosa* could be a temporary or occasional host, but more data are necessary to support this. GHISELIN *et al.* (1967) found that the amino acid composition of the shell matrix was similar in *Haliotis* and *Astraea.* It is possible that a putative "host factor" present in *Haliotis* may also be present in *A. undosa.* Laboratory experiments are necessary to resolve this question, and to determine whether preference is related not only to the recognition of a chemical substance, but also to morphology of these hosts.

PALAEMONIDAE

Pontonia pinnae Lockington, 1878

Distribution and hosts: Upper Gulf of California, to Panama; commensal in *Pinna rugosa* Sowerby, 1835 (WICKSTEN, 1983).

Material examined and new hosts: Dozens of males and females, Bahía de los Angeles, Baja California, commensal in *Pinna rugosa* and *Atrina tuberculosa* (Sowerby, 1835), summer 1986 and April 1987, Mario Nieves, Alma Rosa Murillo-Peralta & E. Campos-González, colls.; 8 females, and 1 male, Estero El Cordon, Laguna de San Ignacio, Baja California Sur, in "Callo de Hacha," 17 May 1987, Eulogio López, coll.

Remarks: Wicksten (1983), in her monograph of caridean shrimps of the Gulf of California, noted *Pinna rugosa* as the only host for *Pontonia pinnae*. However, Luke (1977), in the catalog of crustacean decapods at the Scripps Institution of Oceanography, also cited this shrimp as occurring on *Atrina tuberculosa*. My record confirms Luke's data. Both *Pinna rugosa* and *A. tuberculosa* commonly harbor a sexual couple of *Pontonia pinnae* in the Bahía de los Angeles area.

Pinnotheridae

Pinnotheres margarita Smith, 1869

Distribution and hosts: Bahía Kino, Sonora, México, to Panama Bay; commensal in *Pinctada mazatlanica* (Hanley, 1855), and *Argopecten circularis* (Sowerby, 1835) (Campos-González & Campoy-Favela, in press).

Material examined and new hosts: 4 males and 30 ovigerous females, Estero El Cordon, Laguna de San Ignacio, Baja California Sur, in *Argopecten* (?) *aequisulcatus* (Carpenter, 1864), 17 May 1987, Eulogio López, coll.; 1 female, Agua Blanca, Bahía del Rosario, Baja California, in *Hinnites giganteus* (Gray, 1825), 4 April 1986, Alfredo Salas, coll.

Remarks: The females and males collected at Estero El Cordon agree with the description and variation previously noted (Rathbun, 1918; Wicksten, 1982; Campos-González & Campoy-Favela, in press). The female collected at Bahía del Rosario differed in two features: the carapace margins are arcuate, whereas they are subangular in the specimens from Estero El Cordon and from the Gulf of California, and the fine pubescence normally present in the body of this crab is lacking in this female.

Pinnotheres reticulatus Rathbun, 1918

Distribution and hosts: San Felipe, Baja California, to Costa Rica; hosts, *Polymesoda inflata* (Philippi, 1851), *Protothaca grata* (Say, 1831), and *Tagelus affinis* (C. B. Adams, 1852) (Glassell, 1935; Green, 1985).

Material examined: 22 females (2 ovigerous, 2 juveniles), 2 males, Laguna Percebú, about 23 km S of San Felipe, Baja California, in *Protothaca grata* and *Tagelus affinis,* summer 1986, E. Campos-González, coll.; 1 female, Puertecitos, km 72 road San Felipe–San Luis Gonzaga, in *P. grata,* August 1986, Gerardo Lopez & E. Campos-González, colls.

Remarks: Recently Green (1985) found that *Pinnotheres jamesi* Rathbun, 1923, is a junior synonym of *P. reticulatus* Rathbun, 1918. He noted that the distribution of this species is from off "San Josef Island" Isla San José, Baja California Sur, to Costa Rica, and recorded *Polymesoda inflata* as the only host known. This author, as well as Silas & Alagarswami (1967) and Schmitt *et al.* (1973), overlooked the distributional information and new host given by Glassell (1935) for this species. Glassell recorded *P. reticulatus* from San Felipe, Baja California, living in *Paphia grata* (=*Protothaca grata*) and *Tagelus affinis.* In the Laguna Percebú area, the prevalence of this pinnotherid in *Protothaca grata* is lower. About 1000 clams were dissected to obtain 20 specimens. Only females were found in this host; juveniles, males, and females were taken inside *T. affinis.* Additionally, I have sampled *Protothaca grata* in Campo Pescadores (about 2 km N of San Felipe), and Puertecitos, and found only 1 female in 3000 clams. In these places I did not find *T. affinis,* but the population of *Protothaca grata* is greater than at Laguna Percebú. It is possible that the presence of *T. affinis* ("primary host") is necessary for the subsequent infestation of *Protothaca grata* ("secondary host"). This phenomenon has been recorded for *Pinnixa littoralis* (Pearce, 1966; Garth & Abbott, 1980).

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